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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,571	10/31/2003	Takao Nakazaki	044499-0183	8423
22428	7590	11/17/2005	EXAMINER	
FOLEY AND LARDNER LLP			DEB, ANJAN K	
SUITE 500			ART UNIT	
3000 K STREET NW			PAPER NUMBER	
WASHINGTON, DC 20007			2858	

DATE MAILED: 11/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/697,571	Applicant(s) NAKAZAKI ET AL.	
	Examiner Anjan K. Deb	Art Unit 2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Miller (US 4,700,131).

Re claim 1, Miller discloses sensor device 10 comprising coated electric wire 30 (helical winding of insulated copper wire) wound around a detection circuit in a planar manner (Fig. 1) so as to electrostatically shield (Faraday shield) the detection circuit, wherein the electric wire is coated with an insulating material (column 3 lines 37-39, 59-63).

Re claim 2, Miller discloses wherein the coated electric wire is spirally wound (helical winding) around the detection circuit in a single manner (column 3 lines 37-39, 59-63).

Re claim 3, Miller discloses detection circuit board 57 having the detection circuit 42 (coils) and a cylindrical case (outer cylindrical magnetic shield)(column 2 lines 42-45) wherein the coated electric wire 30 is wound around the detection circuit board in a cylindrical manner so as to form a cylindrical surface, and the direction of an axis of the cylindrical surface is parallel to the direction of the axis of the case (Fig. 1).

Re claim 4, Miller discloses sensor device comprising detection coil 42 having a core (column 2 lines 36-42) and the detection circuit includes an oscillation circuit (signal generator)(abstract) having the detection coil 42. Re proximity sensor and coil serving (functioning) as a resonance element [see MPEP 2114 R-1 — Functional Language:

**APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM THE PRIOR ART**

>While features of an apparatus may be recited either structurally or functionally, claims<directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. >In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also In re Swinehart, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971);< In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original)]. Clearly the magnetic field sensor disclosed by Miller could be used as a proximity sensor by detecting magnetic field associated with an object.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller (US 4,700,131) in view of applicant's admitted prior art (see specification pages 1-3).

Re claims 5 and 6 Miller disclosed all of the claimed limitations as set forth above including metallic film (outer cylindrical magnetic shield)(column 2 lines 42-45) for electrostatically shielding and the detection coil is formed at the outer surface of the core, and the coated electric wire is electrically connected to ground, except coated electric wire are electrically connected to the metallic film of the core and to ground. However these features are disclosed in the admitted prior art (pages 1-3).

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Miller by adding electrical connection of coated wire to metallic film and to ground as disclosed in the admitted prior art for maintaining the electrostatic shield at a common ground potential for effectively shielding the sensor from electromagnetic noise.

Re claims 7 and 8 Miller did not expressly disclose coating strength of coated electric wire used for shielding is greater than that of the coated electric wire to be used as a coil wire of the detection coil, but would have been obvious to do so as required for providing the required electrical insulation as well as for adequate mechanical strength.

5. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller (US 4,700,131) in view of Hatanaka (US 6,069,393).

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Re claims 9 and 10 Miller discloses all of the claimed limitations as set forth above including coated electric wire wound around a detection circuit in a planar manner except wherein the sensor is photoelectric sensor for converting light from a region into an electric signal

Hatanaka (US 6,069,393) discloses electrostatic shield 621 for a photoelectric sensor for converting light from a region into an electric signal providing stable photo current (column 11, lines 41-43)(Fig. 24).

At the time the invention was made it would have been obvious for one of ordinary skill in the art to modify Miller by replacing the magnetic current sensor with a photoelectric sensor disclosed by Hatanaka for converting light from a region into an electric signal including the electrostatic shield disclosed by Hatanaka for providing stable photo current.

Re claim 11, Miller disclosed sensor device further comprising detection circuit board having detection circuit 42 contained inside cylindrical case (outer cylindrical magnetic shield)(column 2 lines 42-45), wherein the coated electric wire 30 is wound around the detection circuit board and the board holder in a planar (two dimensional surface) manner (Fig. 1). Sensor 42 mounted on bobbin 57 (Fig. 5) is broadly interpreted as detection circuit board.

Miller and Hatanaka combined did not expressly disclose semi-split cylindrical board holder but would have been obvious to do so to facilitate sensor manufacture and assembly.

At the time of the invention it would have been obvious for one of ordinary skill in the art to modify Miller and Hatanaka by incorporating semi-split cylindrical board holder for supporting detecting circuit so as to facilitate sensor manufacture and assembly.

*Conclusion*

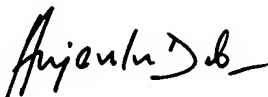
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Geiger (US 3,665,298) discloses sensor comprising cylindrical body (tubular) comprising coil and electrostatic shield 65 (Faraday shield) made of planar coated (Teflon) copper sheet.

Adams (US 3,684,955) discloses sensor (current probe) comprising coil winding with shielding so that signal generated in winding can be transferred to a remote location without contamination by the high fields.

Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is 571-272-2228. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached at 571-272-2399.



**Anjan K. Deb**

Primary Patent Examiner

Art Unit: 2858

11/15/05

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